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STATISTICAL BULLETIN
Metropolitan Life Insurance Co.

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CHILDREN IN AUTOMOBILE ACCIDENTS

The high proportion of children among persons killed in automobile accidents has often been referred to by the STATISTICAL BULLETIN. No other phase of the problem arising out of automobile fatalities is giving so much concern to those interested in public health and public safety.

The proportion of automobile accidents that falls upon children is subject to peculiar seasonal variations. For example, the total automobile fatalities, at all ages, among Metropolitan Industrial policyholders, in 1925-1927, was nearly the same in the month of April (686 deaths) and December (652 deaths). But in the spring month nearly one-half of these 686 cases (46.8 per cent.) were deaths of children; in the winter month, on the other hand, exactly one-quarter were deaths of children. The late summer months, August and September, are, for obvious reasons, extremely fatal, with a death roll of 964 and 936 respectively, for persons of all ages. Among children, too, there is an *absolute* maximum here, with 340 and 343 deaths respectively. But although the maximum thus occurs in the same season for all ages as for children, the proportion of the deaths of children to the total is relatively low at this time of the year, namely, 35.3 and 36.6 per cent. as shown, together with other details in the accompanying table. These are bare figures. What is the meaning behind them?

The relatively low proportion of children killed in the winter months (25 per cent. in December, 27.9 per cent. in January) is what we would expect. The weather keeps the children indoors, or at least reduces greatly playing on the streets. But why the relatively low percentages in the summer months? One explanation suggests itself. In the peak of the automobile season there will be a relatively greater proportion of *collisions* between automobiles. But it is not in collisions between automobiles that the majority of fatalities to

children occur. The children are struck, for the most part, when playing on the streets, running off the sidewalk, or at street crossings. The automobile collisions affect chiefly adults. Thus the summer peak in the automobile traffic will not so greatly affect the number of fatalities to children, because the number of children on the streets, although increased at this season, is not so much increased as the automobile traffic itself.

Number of Automobile Fatalities, All Ages Combined, and Under 15 Years. Deaths Under 15 Years Expressed as Per Cent. of Total. Metropolitan Life Insurance Company. Premium-Paying Business in Industrial Department, 1925-1927

Month	Total Number of Deaths	Deaths Under 15 Years of Age	Deaths Under Age 15, as Per Cent. of Total for Each Month
Total 1925-1927.....	8,953	3,284	36.7
January.....	480	134	27.9
February.....	447	177	39.6
March.....	555	229	41.3
April.....	686	321	46.8
May.....	771	329	42.7
June.....	805	339	42.1
July.....	871	340	39.0
August.....	964	340	35.3
September.....	936	343	36.6
October.....	978	327	33.4
November.....	808	242	30.0
December.....	652	163	25.0

ILLNESS AMONG OFFICE WORKERS

It is estimated that close to four million American men and women are now employed in clerical work in offices. Obviously, the health status of this body of workers is of great importance both to public health and to commerce and industry. As a contribution to the study of the health of clerical workers, the Metropolitan Life Insurance Company will publish from time to time some of the more important facts developed by its investigation of disabling sickness (*i.e.*, sickness causing loss of one day or more from work) among its own Home Office employees.*

During the year 1926, there were 28,846 cases of illness among clerical employees, entailing absence from work of 86,785 days, or an average loss of 3 days per illness. "Indigestion," common colds, grippe, and tonsillitis, were responsible for two-thirds of all the

*This investigation was conducted under the supervision of Dr. Wade Wright, Assistant Medical Director, Metropolitan Life Insurance Company.

illness in which one or more days' time was lost. With indigestion and colds, the average duration of disabling illness was 1 1-3 days. In grippe cases, it was a little over 4 days, and with tonsillitis, 3 days.

In approximately two-thirds of all the cases of sickness, the duration of absence was 1 day; and, in more than four-fifths, it was less than 3 days. As might be expected, some of the less frequent causes of sickness entailed much longer periods of absence. For example, in 173 cases of "nervousness," the average time lost was 24 days per case. Inevitably, in cases of sickness from the more dangerous conditions like pneumonia and pleurisy, and in operative cases such as tonsillectomies, appendectomies, and hemorrhoidectomies, much longer average periods of absence ensued.

Absence due to illness assumes much larger proportions among female than among male employees. During the year 1926, there were 1.8 absences, due to sickness, per clerk year, for males, as compared with 3.2 absences per clerk year for females. That is, the absence rate of female clerical employees was 78 per cent. higher than that for males. A higher rate for females was observed for employees in every age group, save one, the excess of the female over the male absence rate running from a minimum of 52 per cent. at ages under 20 to a maximum of 174 per cent. at 55 to 59. At ages 20 to 24, the excess was 62 per cent. and at 25 to 29, it was 92 per cent. Nearly 80 per cent. of the clerk years were accounted for by employees under 30 years of age.

EXCELLENT HEALTH CONDITIONS DURING 1928 IN THE FAR WEST AND CANADA

The general health situation this year among the more than 18,500,000 Industrial policyholders of the Metropolitan Life Insurance Company, although better than the average, has not been quite as good as in 1927. This, nevertheless, does not apply to the Far West or to Canada; for the rise in the deathrate has been confined to the states lying east of the Rocky Mountains.

In this eastern part of the country, the more than sixteen million Metropolitan Industrial policyholders had a deathrate, up to the end of August, of 9.6 per 1,000 as compared with 9.3 last year, an increase of 3.2 per cent. Among the more than a million insured persons in the states of California, Oregon, Washington, Utah, Idaho, Montana and Colorado, on the other hand, the deathrate up to August 31 was only 6.8 per 1,000, as compared with 7.4 in 1927, a drop of 8.1 per

cent., and among the million and a quarter Canadians, the mortality declined from 9.3, in 1927, to 8.9, a drop of 4.3 per cent.

It is interesting to trace the several individual items which account for these differences. One is measles. Last year this disease reached epidemic prevalence in many sections of the Far West and in Canada, while the rate east of the Rocky Mountains was low. This year, the measles deathrate in the East has about doubled, whereas it has been negligible in the Far West, and has been cut in half in Canada. A large drop in the whooping cough rate has been an important item in Canada this year. In the Pacific Coast and Rocky Mountain states, the influenza rate has been cut by one-third; whereas, the rest of the United States shows about the same ratio of increase. The pneumonia deathrate has gone up sharply throughout most of the United States, but in the Far West it had actually registered a slight decline up to August 31. Mortality from this disease also rose somewhat in Canada, but the increase was not as large as in the Eastern section of the United States.

The deathrate for the three principal "degenerative diseases," heart disease, cerebral hemorrhage, and chronic nephritis, is appreciably higher, east of the Rockies, this year, as compared with a considerable improvement in the West and very little change in Canada.

Both sections of the United States, as well as Canada, show declines in the deathrates from three diseases which are of paramount public health interest, namely, typhoid fever, tuberculosis and conditions incidental to pregnancy and childbirth. All indications are that new minimum deathrates for all time will be recorded for these diseases. Last year the weight of the terrible death toll from typhoid in Montreal and environs was reflected in a deathrate of 35.0 per 100,000 among Canadian policyholders, up to the end of August. This year, the figure for the corresponding period is only 5.9.

In one respect, namely, automobile fatalities, the record is altogether in favor of the Eastern section of the United States. Here the mortality has declined for the first time in many years, as compared with a sharp rise in the Far West and a small increase in Canada. Fatal automobile accidents are assuming more serious proportions every year in the Dominion. Only two years ago, the Canadian deathrate for this cause at the end of August was 4.8 per 100,000. It is now 7.3—a rise of 52 per cent. in this short time.

REVISION OF THE CLASSIFICATION OF CAUSES OF DEATH

In the early fall of 1929 the decennial conference for the revision of the International Classification of Causes of Death and Sickness will again be held at Paris. Since the United States will send delegates (as it has to all prior conferences), it will be of interest to consider at this time some of the points which are likely to come up for discussion.

One of the most important of these is a proposal to divide the classification into three main subdivisions—instead of two, as at present. First, it is proposed to have, as at present, a very extensive and detailed list which will enable nations like the United States, Great Britain, Holland and a few others, to present tabulations of causes of death which will set forth the data in much greater refinement than the other countries care to do; second, a greatly abridged list, which provides for only the most important causes of death, and which is now in use in many countries; third, a new and much needed intermediate classification to meet the needs of a large number of countries, which wish to include in their vital statistics reports, data for fewer diseases than the detailed list provides for, but for more than are covered by the abridged list.

The International Conference will also consider what changes are necessary in order that the classification may be kept consistent with newly established facts of medicine and pathology. One important example is the case of acute rheumatic fever which is being urged for transfer from the group of "general diseases" to that of "epidemic, endemic and infectious diseases." Other equally important changes will be proposed—some of them by the United States delegation which has been studying the subject for many years.

The primary object, in fact the very *raison d'être* of the International Classification, is to supply health officers and registrars of vital statistics with a standard list of conditions which reflect the mortality and the morbidity of their respective countries. Incidental —but almost equally important—is to bring about comparability between the statistics, in the subscribing countries, of the various causes of death. These countries include all of the English- and Spanish-speaking nations, nearly all of the European states and also China, Japan, Persia, and Siam. Much has been accomplished toward the attainment of comparability; but much remains to be done, as explained below.

If every death were certified by a physician as due to a single disease, comparability of the figures for the various countries would

be easily compassed. Each country would merely classify under the appropriate heading every death reported from each disease-entity. With such uniform international practice, the deathrates published by each country would be comparable for each disease, and the International Classification would have already brought about almost world-wide comparability of published deathrates from all of the important causes of death.

But in many countries, among which the United States is a conspicuous example, from 25 to 50 per cent. of the deaths are certified as due to *more than one* disease; and herein lies the greatest obstacle in the way of attaining world-wide comparability of mortality statistics. For, these International Conferences have never subscribed to a rigid set of rules for the classification of jointly reported causes of death. There have, it is true, been more or less casual references to this important subject; and certain procedures have been suggested. As matters stand today, nevertheless, it is safe to say that no two countries have absolutely uniform methods of classifying a large percentum of their causes of death. It follows, logically, that unless the International Conference of 1929 adopts definite regulations to cover this troublesome subject, the very end for which the International Classification was created will continue to be defeated, as we believe it is defeated today.

One or two outstanding examples of how unsettled classification procedure interferes with comparability and with scientific study of the mortality from certain diseases are in order. A certain statistical office was making a study of the effect of the great influenza pandemic of 1918 upon the mortality from puerperal conditions in the United States and in England and Wales. In the former* the figures show a rise from 6.6 deaths from puerperal causes, per 1,000 live births, in 1917, to 9.2 in 1918; in the latter, there actually appeared to have been a slight decline, namely, from 3.9 in 1917 to 3.8 in 1918. On the face of these figures, the investigator would have to conclude that while influenza was the cause of a big increase in the mortality of pregnant and parturient women in the United States, such was not the case in England. What actually happened was that in the United States all deaths, in which the return showed both influenza and any puerperal cause, were charged to the latter, whereas in England they were charged to the former. We have no brief to defend or condemn either procedure, but it is extremely unfortunate that the practice in the two principal English-speaking countries is not the same. Even

*Seventeen Birth Registration States and the District of Columbia.

in the United States there is no country-wide uniformity of procedure. In New York City, during the year 1925, the report published by the City Health Department shows that 8,397 deaths were charged to pneumonia, whereas according to the report of the United States Census Bureau there were only 7,433 deaths from this cause. For nephritis, acute and chronic, the difference is even more startling, the Census Bureau reporting 6,256 deaths and the City Health Department only 3,912. For cirrhosis of the liver, the Census Bureau figure is 604 deaths, while the New York City report shows only 406. There are more or less startling discrepancies for other diseases. Now as the New York City Health Department sends exact copies of its death certificates to the United States Census Bureau, where they are carefully edited, there can be only one reason for these discrepancies, namely, that the Census Bureau classifies the jointly reported causes according to its own "Manual of Joint Causes of Death," whereas the local health department in New York follows a different method.

It should be explained, for the benefit of those who are not familiar with the technique of classifying causes of death (for purposes of mortality statistics), that it is impracticable in statistical reports to charge any one death to more than a single disease. To attempt to keep records of every condition reported would result in highly involved tabulations which it would be impossible to prepare and publish until years after that to which the figures relate. Such tabulations might have some historical value—but no current value. The accepted procedure of all vital statisticians has been to reduce polynomial reports to a monomial basis. Unfortunately, the statisticians—either within the United States or throughout the world—are not in agreement on how this should be done.

FAMILY DAMAGE WHEN A WAGE EARNER DIES

Each year 400,000 widows, and 200,000 children under 16, are left in the United States to face new and obviously less favorable economic conditions because of the death of their breadwinners.

The greatest damage ensues when the wage earners die between the ages of 35 and 45 years; for at this age they leave on the average 2.7 young children who, far from being able to contribute to the family budget, are rather a drain upon it, since they must be cared for out of whatever resources the widows can command. The wage earners dying between 25 and 35 years leave on the average, 2.1 dependent children, while those under 25 leave only 1.4 such dependents. These

figures are based on the conditions existing among wage earners insured in the Metropolitan Life Insurance Company, but we believe them to be generally applicable to the entire population of the United States.

Of all the fathers, age 35 to 44, who died with dependent issue, more than 70 per cent. left 2 or more children under 16. Nearly one-fifth of such fathers, as a matter of fact, left 4 children, and nearly one-fifth, 5 or more children. Among the fathers dying between 25 and 35, approximately 60 per cent. left 2 or more dependent children; while of deceased fathers below 25, about one-third left 2 or more dependent children.

Foreign-born fathers leave more dependents, on the average, than do the native born, but the number left by colored men does not differ essentially from that by whites.

A relatively few causes of death are responsible for the major part of this family damage. In the age interval 25 to 44 years, nearly 6 deaths out of every 10 among white male wage earners were due to four causes, namely, tuberculosis, influenza-pneumonia, heart disease and accidents. These conditions cause, respectively, 22.7 per cent., 12.6 per cent., 11.5 per cent. and 14.2 per cent. of the total mortality. It is particularly significant that these causes are, for the most part, preventable. With respect to tuberculosis, the situation is showing marked improvement each year with a drop in the deathrate of more than 60 per cent. within two decades. Nevertheless, there is still much to be done in American cities to safeguard families from the destructive influence of tuberculosis. Health and social workers have come to realize the great importance of heart disease as a cause of disability, dependency, and death. Cardiac conditions today probably constitute our foremost public health problem. Heart disease, it is realized, may be prevented, especially in the ages with which we are concerned. An intelligent effort is being organized for the control of cardiac disease. Heart clinics are devoting much attention to its prevalence in childhood, recognizing that while cardiac diseases cause death, for the most part in later life, they are often *acquired* in childhood. Impairment often follows closely upon an attack of an infectious disease such as diphtheria, scarlet fever, pneumonia or acute rheumatic fever. It is thus clear that intelligent care of children who have had any of these conditions is called for in connection with the prevention of cardiac disease. Such care, in time, should be reflected by a reduction in the heart disease deathrate for adults, and in corresponding benefits to American families. While the accident rate is much lower

than it was 20 years ago, there has not been any improvement for eight years. This failure of the accident deathrate to improve is due, altogether, to automobile fatalities. These are an important item in the mortality among males between 25 and 45 years, and a consequent cause of much family damage.

HEALTH RECORD FOR AUGUST, 1928

Health conditions among the industrial populations of the United States and Canada during August were by no means as favorable as in either the preceding month of this year, or in August of last year. In fact, the August mortality figure (8.4 per 1,000) among Metropolitan Industrial policyholders was a little higher than during any preceding August of the current decade, except in 1923, when an identical figure was recorded. This situation should not, however, give occasion for much concern. No other month registers as small variations in mortality, year in and year out, as does August. During the current decade the lowest August deathrate was 7.5; so that the difference between the maximum and minimum for this period is less than one full point per 1,000. The cumulative deathrate of the Industrial policyholders this year, up to the week ended September 22d, was only 3.3 per cent. in excess of that for the corresponding period of 1927, which, in turn, was the best health year in the history of this country and Canada.

Analysis of the table on page 11 shows that the higher deathrate, as compared with August, 1927, was due, for the most part, to increased mortality from two of the "degenerative diseases," cerebral hemorrhage and organic heart disease, supplemented by rises in the figures for diarrheal complaints and accidents.

All of the principal epidemic diseases of childhood, except measles, registered lower deathrates than were in evidence a year ago. The decline in the diphtheria figure is particularly gratifying. It will be recalled that this disease showed an increased deathrate in 1927, following a long series of years in which the mortality had been dropping continuously. Up to the end of April it looked as if 1928 would witness a further increase; but during the subsequent months the situation has improved appreciably and prospects now are that the year will show a lower deathrate than that for 1927. The August tuberculosis deathrate was slightly below that of last year. In five of the eight elapsed months of 1928 the mortality from tuberculosis has shown improvement over 1927. With each succeeding month prospects for a new minimum for this disease become brighter. The

record for puerperal conditions was also better than in August a year ago. Improvement with respect to these diseases has been shown for seven of the eight elapsed months of 1928.

The August record for fatal accidents was distinctly unfavorable. The deathrate was 81.9 per 100,000. This is the highest August mortality figure we have ever recorded for accidents. Automobile fatalities were also more numerous than during August, 1927. With respect to this cause, however, the cumulative deathrate up to September 22d shows improvement over last year.

The general deathrate for the large cities of the United States in August was 11.0 per 1,000 population. This may be compared with 11.2 for July and with 10.2 for August a year ago. Poliomyelitis and typhoid fever were more prevalent than in July, but there were fewer cases of diphtheria, influenza, measles, scarlet fever and smallpox. Comparison with August, 1927, shows increased sickness from influenza and measles, with fewer cases of diphtheria, poliomyelitis, scarlet fever, smallpox and typhoid fever.

Poliomyelitis cases, according to reports received from 24 states, increased from 106 in July to 389 in August. The most outstanding increases were from 13 to 144 cases in Massachusetts, from six to fifty-three in North Dakota and from no cases to eighteen in Colorado. Reports of several outbreaks were received. In Newton, Mass., there were ten cases within a week, and for the first four weeks of August cases were reported from various sections of the state. In Winnipeg, Manitoba, the situation brought about an emergency meeting of the Medical Society. The opening of the fall school term was postponed until September 17th.

There was the usual seasonal increase of typhoid fever, the most notable rises being reported from Pennsylvania and Oklahoma. The Health Department of Louisville, Ky., offered free inoculation against typhoid on account of the prevalence of the disease in that city and in Jefferson County. Twenty-five cases were reported in Williamsport, Md., and sixteen cases with two deaths in one of the suburbs of Indianapolis, Ind.

The following table shows the mortality among the industrial populations for August, 1928; July, 1928; August, 1927, and the year 1927.

METROPOLITAN LIFE INSURANCE COMPANY

Deathrates* per 100,000 for Principal Causes, Premium-paying Business in Industrial Department (Annual Basis)

MONTHS OF AUGUST, 1928; JULY, 1928, AND OF AUGUST, 1927

CAUSES OF DEATH	RATE PER 100,000 LIVES EXPOSED*			
	Aug., 1928	July, 1928	Aug., 1927	Year 1927
TOTAL—ALL CAUSES	843.2	809.9	817.6	887.9
Typhoid fever	4.4	2.8	5.7	4.6
Measles	2.2	5.0	1.7	4.1
Scarlet fever	1.0	2.0	1.8	3.1
Whooping cough	5.4	5.8	7.1	6.4
Diphtheria	4.5	7.0	7.6	10.6
Influenza	5.6	9.9	4.5	17.8
Tuberculosis (All forms)	90.9	83.3	91.8	93.6
Tuberculosis of resp'y system	79.1	72.9	80.3	81.9
Cancer	74.8	70.0	75.3	74.3
Diabetes mellitus	15.6	14.7	15.6	16.8
Cerebral hemorrhage	51.8	48.2	45.2	55.1
Organic diseases of heart	123.8	127.8	116.2	132.5
Pneumonia (All forms)	37.9	49.3	38.7	77.7
Other respiratory diseases	11.7	13.9	11.4	11.7
Diarrhea and enteritis	40.9	27.1	36.4	24.6
Bright's disease (Chronic nephritis)	60.8	58.0	61.9	69.5
Puerperal state	14.4	13.0	14.8	15.5
Suicides	8.3	7.9	8.8	8.3
Homicides	6.7	6.1	7.0	7.3
Other external causes (excluding suicides and homicides)	81.9	71.4	74.1	63.9
Traumatism by automobiles	22.8	16.0	20.0	18.4
All other causes	200.8	186.6	192.1	190.5

*All figures include infants insured under one year of age.

Correspondence on the subjects discussed in these BULLETINS may be addressed to: The Editor,

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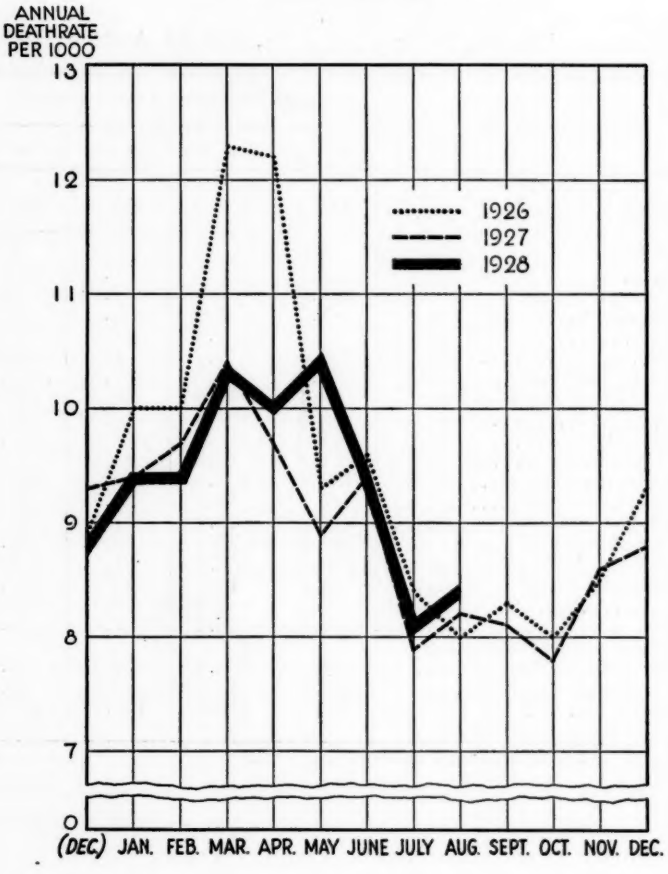
Deathrates from All Causes

METROPOLITAN LIFE INSURANCE CO.
INDUSTRIAL DEPARTMENT



1926	10.0	10.0	12.3	12.2	9.3	9.6	8.4	8.0	8.3	8.0	8.5	9.3
1927	9.4	9.7	10.4	9.7	8.9	9.4	7.9	8.2	8.1	7.8	8.6	8.8
1928	9.4	9.4	10.3	10.0	10.4	9.4	8.1	8.4				

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